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A review of some medicinal plants

Part 1*

S. C. Bausor

A compilation of even a short list of plants is a cryptic history of the accumulation of empyric knowledge by primitive and civilized peoples throughout the world. The circumstances leading to the original use of plants in combating disease can only be conjectured. It seems quite natural that primitive man should have known the virtues of the flora surrounding him, since it provided him with sustenance. He learned by trial and error to distinguish the food plants from the poisonous ones and that the latter produced symptoms like disease. The next progressive step was the application of these "disease-producing" plants as a cure for disease itself. A similar principle is used today in immunology by serum treatment and in dermatology in the treatment of allergies.

History is fragmentary with respect to the first account of medicinal plants. The earliest extant work is thought to be that of a certain Dioscorides which is as recent as the beginning of the Christian era. This work was used as an authority through the Middle Ages. During the Renaissance physicians attempted to describe with more accuracy the plants of Europe having known or reputed medicinal value, in order to clarify the confusion which had grown up around them as a result of trying to recognize in them duplicates of the plants of the East described by Dioscorides. The work of these herbalists[1] led gradually to a broader view of the nature of plants in general and of medicinal plants in particular.

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* Part 2 of this paper, describing medicinal plants of our local flora, will appear in the next number of Torreya.

[1] Agnes Arbor, "Herbals," 1912.

Following this start, pharmacognacists gradually brought together the knowledge of medicinal plants from all parts of the earth and sought to determine more accurately the chemical and biological properties of these plants. Today this body of data is collected encyclopedically in the Pharmacopoeias and Dispensatories.[2]

Our most valuable medicinal plants are collected from far and near. The following is a selection of some of the more important drugs of vegetable origin, their sources, and uses.

I—Most Important Vegetable Drugs

1. Digitalis. The leaves of the flowering plant *D. purpurea* L. (Foxglove) are dried and used in preparation of a fluidextract, infusion or tincture. The active principles, glucosides, also are employed. It is probably our most useful heart stimulant. The infusion is used as a diuretic. Cultivated extensively.
2. Strophanthus. The ripe seeds of *S. Kombe* Oliv., of tropical East Africa, are made into a tincture. Its action is similar to that of Digitalis. Active principle: one or more glucosides. The natives of Africa use it as an arrow-poison, much as curare (Strychnos) is used among the South American Indians.
3. Opium. Derived from the latex of the incised, unripe fruit (capsule) of the opium poppy, *Papaver somniferum* L. It contains many alkaloids of which morphine is the most important. Its narcotic properties are well known. Cultivated in the Orient, chief source of the world's supply.
4. Coca. The dried leaves of *Erythroxylon Coca* Lam., cultivated from time immemorial at high elevations in the Andes. Cocaine is extracted from the leaves and used chiefly as a local anaesthetic.
5. Ergot. The resting mycelium (sclerotium) of the fungus *Claviceps purpurea* (Fries) Tulasne which replaces the grain of grasses, especially rye. Ergot is prepared for use as a fluidextract, infusion, or tincture. Its alkaloids also are employed. The most valuable application is in the

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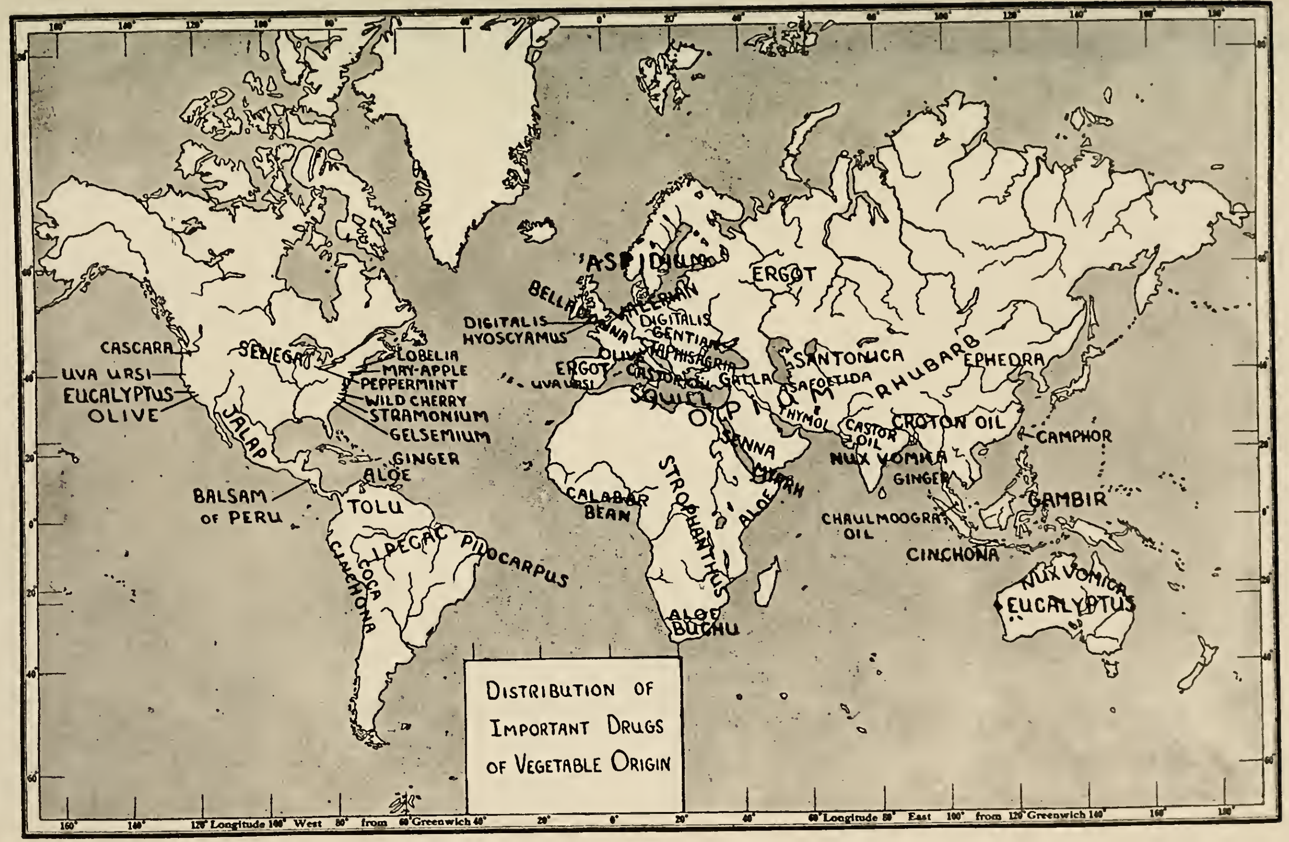
[2] Official in this country are The Pharmacopoeia of the United States of America, XI rev. Easton, Pa., 1936, and The Dispensatory of the United States of America XXI ed., Philadelphia and London, 1926.

later stages of labor, since it causes contraction of the muscles of the uterus.

The following drugs, Nos. 6–12, are used as purges. The multiplicity of drugs with similar physiological properties is of assistance to the physician in cases of individual idiosyncrasies to a particular plant. In addition, these drugs have somewhat different properties, all acting as cathartics, but in different ways.

6. Castor oil. Expressed from the seeds of *Ricinus communis* L. Its purging action is followed by constipation and therefore it is valuable in cases of diarrhoea. Widely cultivated in tropical and subtropical localities.
7. Rhubarb. The rhizome and roots of several species of *Rheum*, especially *R. officinale* Baillon, growing in China and Thibet. It is useful for diarrhoea in children.
8. Senna. The dried leaves of several species of *Cassia*. Prepared as an infusion, fluidextract, syrup; a valuable laxative not followed by constipation.
9. Cascara Sagrada. The dried bark of *Rhamnus Purshiana* DC. In addition to its purging action it acts as a tonic. Prepared as a fluidextract and aromatic extract. Native to Northwestern United States and Canada.
10. Aloe. Juice of the leaves of *Aloe Perryi* Baker, *A. vera* L., *A. ferox* Miller. Prepared as a tincture and pills. Used in cases of chronic constipation. Its purging action is slow.
11. Jalap. Root of *Exogonium Jalapa* (Nutt. and Core) Baillon. Prepared as a fluidextract, tincture, etc. A hydragogue cathartic.
12. Croton oil. Expressed from the seeds of *Croton Tiglium* L. This probably is the most powerful purgative known. The dosage is very small, large doses being lethal.
13. Hyoscyamus. The leaves and flowering tops of *Hyoscyamus niger* L. (Henbane). Prepared as a fluidextract, tincture, etc., it is used in cases of nervous disorder because of its sedative action. Its active principles are at least two alkaloids, hyoscyamine and scopolamine. Widely cultivated in Europe.
14. Valerian. The rhizomes and roots of *Valeriana officinalis* L. prepared as a tincture. It contains a volatile oil which has sedative properties.

15. Asafoetida. The gum-resin from incised rhizomes and roots of *Ferula asafoetida* L., and other species of *Ferula*. Prepared as an emulsion, in pills, and as a tincture. Used as an antispasmodic, expectorant, and as a carminative. Its sedative properties are considered by some to be psychic.
16. Viburnum. Bark of the root of *Viburnum prunifolium* L. (Black Haw) or *V. Lentago* L. (Wild Raisin). Prepared as a fluidextract; claimed to be a uterine sedative.
17. Gelsemium. Rhizomes and roots of *Gelsemium sempervirens* (L.) Persoon (Yellow Jasmine root). Prepared as a fluidextract, extract, and tincture. Useful as a sedative for headache, asthma, whooping cough, etc.
18. Nux vomica. The seed of *Strychnos Nux-vomica* L. containing the alkaloid strychnine. It is prepared for use as an extract, fluidextract and tincture. This drug is probably the most powerful nerve stimulant known to man.
19. Caffeine. An alkaloid obtained from tea (leaves) and coffee (seeds), but also from other unrelated plants. Properties: stimulant and diuretic.
20. Camphor. A ketone obtained from *Cinnamomum Camphora* (L.) Nees and Ebermaier. It has many pharmaceutical preparations such as liniments, ointments, etc. Its most valuable application is as a stimulant in the crisis of an illness.
21. Santonica. Unexpanded flower-heads of *Artemisia pauciflora* (Ledeb.) Weber, and other species. It contains santonin, used to expel round worms.
22. Aspidium. The rhizome and stipes of *Dryopteris Filix-mas* (L.) Schott (Male Fern). The oleoresin is used as a taenicide. It is our most efficient remedy for tapeworm.
23. Thymol. Obtained by refrigeration of the oil derived from *Carum copticum* Benth. and Hook. (Ajowan oil), *Thymus vulgaris* L. (Oil of Thyme), and other plants. The former is the most important commercial source. It is a powerful antiseptic and is used internally in typhoid fever, dysentery, etc. It is a specific for hookworm.
24. Uva Ursi. The leaves of *Arctostaphylos Uva-ursi* (L.) Spreng. (Bearberry). A fluidextract and infusion are made from the leaves. It is valuable as a diuretic.



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IMPORTANT DRUGS
OF VEGETABLE ORIGIN

25. Buchu. Leaves of *Barosma betulina* (Thunb.) Bartling & Wendland. Prepared as a fluidextract and infusion. Employed in genito-urinary diseases.
26. Squill. Bulb of *Urginea maritima* (L.) Baker. Prepared as a fluidextract, etc; employed as a diuretic in dropsy. Also used as an expectorant.
27. Black Mustard. Seeds of *Brassica nigra* (L.) Koch, widely distributed in temperate regions. Used chiefly as a counterirritant in the form of a poultice.
28. Flaxseed. The seeds of *Linum usitatissimum* L. Universally cultivated. Prepared as an infusion it is used as a demulcent to protect the mucous membranes of the alimentary tract from irritation.
29. Olive Oil. Oil from fruit of *Olea europoea* L. It is valuable as a demulcent and mild laxative.
30. May-apple. Rhizome and roots of *Podophyllum peltatum* L. The resin and fluidextract are used. This drug is valuable as a liver invigorator and also as a slow purge.
31. Peppermint. The leaves and flowering tops of *Mentha piperita* L. It contains a volatile oil used as a carminative. Menthol, an alcohol obtained from the oil, is used to relieve head and tooth aches and in preparations for nasal spray.
32. Ginger. Rhizome of *Zingiber officinale* Roscoe. Used as fluidextract, oleoresin, syrup, and tincture; applied internally as a carminative, externally as a rubefacient. It is sometimes used as snuff. Widely cultivated in tropical countries.
33. Gambir. The dried extract of leaves and twigs of *Ourouparia Gambir* (Hunter) Baill. Prepared as a tincture. It owes its properties chiefly to a high tannic acid content, and is employed as an astringent. Useful in diarrhoea and chronic gonorrhoea.
34. Galla. Galls produced on twigs of *Quercus infectoria* Oliv. and other species of Oak. The powdered galls are prepared as an ointment. Its astringent properties are due to a high tannin content.
35. Myrrh. A gum resin obtained from several species of *Commiphora*. As a tincture it is used locally for spongy gums, indolent ulcers, etc. It also has tonic properties.

36. Gentian. Rhizome and roots of *Gentiana lutea* L. Prepared as a tincture, elixir, etc. It is employed as a tonic to whet the appetite. (Angostura bitters, used in cocktails, contains gentian as an ingredient.)
37. Senega. Roots of *Polygala Senega* L. Prepared as a fluidextract, infusion or syrup. Used as an expectorant. It is valuable for chronic bronchitis.
38. Tolu. A balsam obtained from *Toluifera Balsamum* L. Prepared as a tincture or syrup; an expectorant.
39. Prunus Virginiana. Bark of *Prunus serotina* Ehrh. Prepared as a syrup, sometimes used as a tonic or to soothe the mucous membranes of larynx and bronchi.
40. Ipecac. Root of *Cephaelis Ipecacuanha* (Brotero) A. Richard. Prepared as a fluidextract, syrup, tincture, etc. It is used as an expectorant in small doses and as an emetic in larger doses.
41. Belladonna. Leaves and roots of *Atropa Belladonna* L. The leaves are prepared as a tincture, ointment, and plaster; the roots as a fluidextract, liniment, suppositories. It is used to check secretions (sweat, urine, saliva). The alkaloid atropin is used to dilate the pupil of the eye.
42. Pilocarpus. Leaflets of *Pilocarpus microphyllus* Stapf, or of *P. Jaborandi* Holmes. Prepared as a fluid extract. Stimulate the flow of sweat and urine. It contains the alkaloid pilocarpine which acts as a myotic when applied to the pupil of the eye.

42a. Calabar Bean. Seed of *Physostigma venenosum* Balfour from which the alkaloid physostigmine is obtained. It also causes the pupil of the eye to contract.

43. Cinchona. The dried back of several species of *Cinchona* prepared as a tincture, elixir, infusion. It contains the alkaloid quinine used as a specific in malaria.
44. Eucalyptol. Obtained from the oil of *Eucalyptus globulus* Labillardière; used as an expectorant in pulmonary diseases, and also as an antiseptic dressing. The oil itself is used for this purpose also.
45. Stramonium. Leaves of *Datura Stramonium* L. Prepared as an extract or tincture, similar to Belladonna in physiological activity. The dried leaves are smoked to relieve asthma.

46. Lobelia. Leaves and flowering tops of *Lobelia inflata* L. (Indian Tobacco). Prepared as a fluidextract or tincture, used in the treatment of asthma.
47. Balsam of Peru. Obtained from *Toluifera Pereirae* (Royle) Baill. It is applied locally in treatment of indolent ulcers.
48. Ephedrine. The alkaloid of *Ephedra sinica* Stapf. Its properties are similar to those of adrenalin but are more lasting in effect.
49. Staphisagria. Seeds of *Delphinium Staphisagria* L. Prepared as a fluidextract which is employed externally to combat lice and mites.
50. Chaulmoogra oil. From the seeds of *Taraktogenos Kurzii* King. It is used as a specific in the treatment of leprosy.

The above list, though incomplete, contains most of the drugs of vegetable origin used in the practice of pharmacy today. The accompanying map shows the commercial source of most of them.

It will be noted that many of them are native or cultivated in our own country. We need not go far afield to discover useful medicinal plants. Our local flora is rich in species, many of which, however, have fallen into disuse with the decline in the preparation of home remedies, the substitution of cheaper or more efficacious foreign products, and with the innovation of synthetic substitutes.

Columbia University
New York City